

ABSTRACT OF SANITARY REPORTS.

VOL. V. WASHINGTON, D. C., SEPTEMBER 19, 1890. No. 38.

[Published at the Marine-Hospital Bureau in accordance with act of Congress of April 29, 1878.]

UNITED STATES.

Reports of States, and yearly and monthly reports of cities.

ALABAMA—*Mobile*.—Month of August, 1890. Population, 40,000. Total deaths, 61, including phthisis pulmonalis, 4; enteric fever, 2; and diphtheria, 1.

CALIFORNIA—*San Francisco*.—Month of August, 1890. Population, 330,000. Total deaths, 549, including phthisis pulmonalis, 70; enteric fever, 13; diphtheria, 11; scarlet fever, 1; croup, 2; and whooping-cough, 1.

COLORADO—*Denver*.—Month of August, 1890. Population, 150,000. Total deaths, 206, including phthisis pulmonalis, 31; diphtheria, 22; enteric fever, 32; scarlet fever, 1; and whooping-cough, 2.

FLORIDA.—Month of July, 1890. Total deaths, 206, including phthisis pulmonalis, 11; enteric fever, 9; measles, 1; and whooping-cough, 2.

GEORGIA—*Savannah*.—Month of August, 1890. Population, 60,000. Total deaths, 92, including phthisis pulmonalis, 20; diphtheria, 1; enteric fever, 1; measles, 1; and whooping-cough, 1.

ILLINOIS—*Chicago*.—Month of August, 1890. Population, 1,100,000. Total deaths, 2,054, including phthisis pulmonalis, 167; diphtheria, 50; enteric fever, 115; croup, 17; scarlet fever, 9; measles, 4; and whooping-cough, 31.

Galesburg.—Month of August, 1890. Population, 17,000. Total deaths, 19, including phthisis pulmonalis 5.

IOWA.—Month of July, 1890. The following mortuary report is extracted from the *Monthly Bulletin* for August:

Davenport.—Consumption, 2; pneumonia, 2; diphtheria, 2; typho-malarial fever, 1; membranous croup, 1; cholera infantum, 5. Total deaths, 37. Death rate, 1.10.

Des Moines.—Consumption, 6; diphtheria, 3; scarlet fever, 1; meningitis, 1; cholera infantum, 11. Total deaths, 68. Population, 53,000. Death rate, 1.15.

Dubuque.—Diphtheria, 1; membranous croup, 1; typhoid fever, 2; typho-malarial fever, 2; meningitis, 4; cholera infantum, 3; dysentery, 1. Total deaths, 43. Population, 35,000. Death rate, 1.07.

Keokuk.—Consumption, 2; scarlet fever, 1; cholera infantum, 2. Total deaths, 17. Population, 14,500. Death rate, 1.01.

Muscatine.—Consumption, 1; cholera infantum, 6. Total deaths, 14. Population, 12,000. Death rate, 1.02.

Burlington.—No report.

Council Bluffs.—Consumption, 1; diphtheria, 4; whooping-cough, 1; cholera infantum, 11. Total deaths, 40. Population, 28,000. Death rate, 1.73.

KENTUCKY—*Louisville*.—Month of August, 1890. Population, 227,000. Total deaths, 237, including phthisis pulmonalis, 24; diphtheria, 6; enteric fever, 23; scarlet fever, 3; and croup, 2.

MASSACHUSETTS—*Newton*.—Months of June and July, 1890. Population, 22,011.

Month of June. Total deaths, 16, including phthisis pulmonalis 2.

Month of July. Total deaths, 27, including phthisis pulmonalis 2 and whooping-cough 1.

MICHIGAN.—Week ended September 6, 1890. Reports to the State board of health, Lansing, from 75 observers, indicate that whooping-cough, influenza, diphtheria, measles, and pleuritis increased, and that puerperal fever, typhoid fever, membranous croup, scarlet fever, and cerebro-spinal meningitis decreased in area of prevalence.

Diphtheria was reported at 30 places, scarlet fever at 25 places, enteric fever at 35 places, and measles at 10 places.

MINNESOTA—*Minneapolis*.—Month of July, 1890. Population, 200,000. Total deaths, 286, including phthisis pulmonalis, 16; enteric fever, 3; diphtheria, 16; measles, 3; and whooping-cough, 2.

Month of August, 1890. Population, 200,000. Total deaths, 249, including phthisis pulmonalis 13, enteric fever, 14; diphtheria, 15; measles, 1; scarlet fever, 2; and whooping-cough, 1.

Winona.—Month of August, 1890. Population, 19,000. Total deaths, 35, including whooping-cough 4.

NEW YORK—*Rochester*.—Month of August, 1890. Population, 130,000. Total deaths, 214, including phthisis pulmonalis, 19; enteric fever, 3; and whooping-cough, 1.

OHIO—*Cincinnati*.—Month of August, 1890. Population, 325,000. Total deaths, 473, including phthisis pulmonalis, 43; diphtheria, 29; enteric fever, 24; croup, 4; and whooping-cough, 2.

Dayton.—Month of August, 1890. Population, 60,000. Total deaths, 71, including phthisis pulmonalis, 6; enteric fever, 1; diphtheria, 1; and croup, 1.

PENNSYLVANIA—*York*.—Month of July, 1890. Population, 21,000. Total deaths, 34, including enteric fever 1.

Month of August, 1890. Total deaths, 35, including phthisis pulmonalis 3 and diphtheria 1.

TENNESSEE—*Nashville*.—Month of August, 1890. Population, 68,531. Total deaths, 99, including phthisis pulmonalis, 9; enteric fever, 5; and diphtheria, 1.

VIRGINIA—*Lynchburg*.—Month of August, 1890. Population, 25,000. Total deaths, 43, including 1 from enteric fever.

MORTALITY TABLE, CITIES OF THE UNITED STATES.

Cities.	Week ended.	Estimated popula- tion.	Total deaths from all causes.	Deaths from—										
				Cholera.	Yellow fever.	Small-pox.	Variceloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping- cough.
New York, N. Y.....	Sept. 6....	1,640,398	717	.....	.....	.....	.....	.....	.....	15	1	11	7	11
New York, N. Y.....	Sept. 13....	1,640,398	686	.....	.....	.....	.....	.....	.....	17	3	13	7	14
Brooklyn, N. Y.....	Sept. 13....	871,852	367	.....	.....	.....	.....	.....	.....	4	.....	11	.....	7
Baltimore, Md.....	Sept. 13....	500,343	164	.....	.....	.....	.....	.....	.....	12	.....	.....	.....	2
Boston, Mass.....	Sept. 13....	446,507	194	.....	.....	.....	.....	.....	.....	5	1	4	.....	2
Cincinnati, Ohio.....	Sept. 13....	325,000	111	.....	.....	.....	.....	.....	.....	7	.....	9	.....	.....
New Orleans, La.....	Sept. 6....	254,000	124	.....	.....	.....	.....	.....	.....	1	.....	1	.....	2
Pittsburgh, Pa.....	Sept. 9....	240,000	94	.....	.....	.....	.....	.....	.....	11	2	6	.....	.....
Detroit, Mich.....	Sept. 6....	230,000	92	.....	.....	.....	.....	.....	.....	1	1	7	.....	.....
Milwaukee, Wis.....	Sept. 13....	220,000	72	.....	.....	.....	.....	.....	.....	4	.....	3	.....	.....
Minneapolis, Minn.....	Sept. 13....	200,000	45	.....	.....	.....	.....	.....	.....	3	.....	5	.....	.....
Kansas City, Mo.....	Sept. 13....	135,000	33	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....
Rochester, N. Y.....	Sept. 13....	135,000	35	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
Providence, R. I.....	Sept. 13....	132,043	40	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....
Indianapolis, Ind.....	Sept. 12....	129,346	37	.....	.....	.....	.....	.....	.....	1	.....	3	.....	.....
Toledo, Ohio.....	Sept. 12....	81,650	30	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
Nashville, Tenn.....	Sept. 13....	76,309	35	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....
Fall River, Mass.....	Sept. 13....	74,918	32	.....	.....	.....	.....	.....	.....	2	.....	1	.....	.....
Charleston, S. C.....	Sept. 13....	60,145	31	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	2
Portland, Me.....	Sept. 13....	42,000	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Binghamton, N. Y.....	Aug. 30....	35,000	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Binghamton, N. Y.....	Sept. 13....	35,000	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Auburn, N. Y.....	Sept. 13....	26,000	4	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
Newton, Mass.....	Sept. 6....	22,011	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newport, R. I.....	Sept. 11....	20,000	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rock Island, Ill.....	Sept. 7....	16,000	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pensacola, Fla.....	Sept. 6....	15,000	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tampa, Fla.....	Sept. 13....	10,000	2	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....

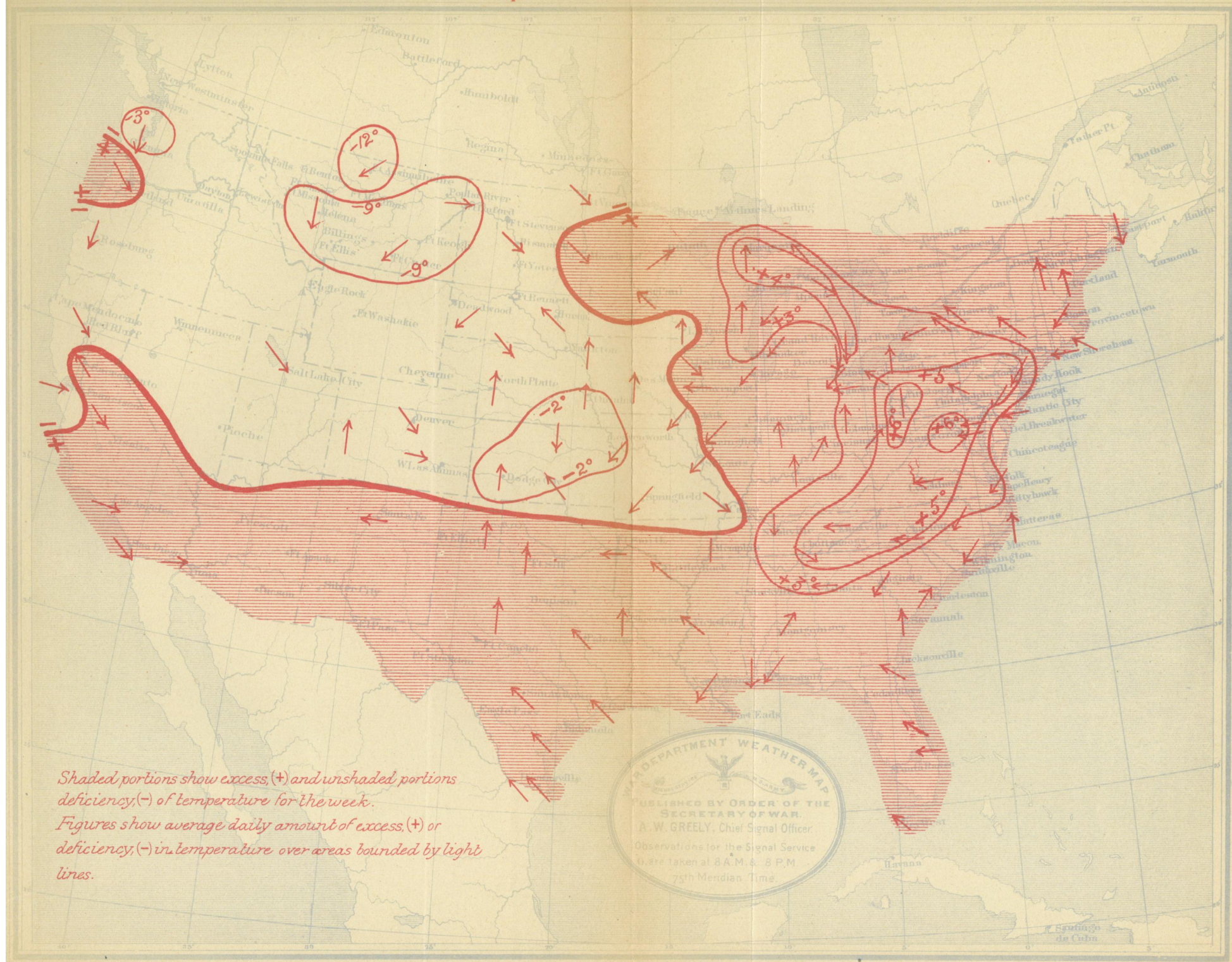
Table of temperature and rain-fall, week ended September 12, 1890.

[Received from War Department, Signal Office.]

Locality.	Mean temperature in degrees, Fahrenheit.			Rain-fall in inches and hundredths.		
	Normal.	Excess.	Deficiency.	Normal.	Excess.	Deficiency.
New England States:						
Eastport, Me.....	57	9	.....	.83	.....	.05
Portland, Me.....	62	16	.....	.71	.....	.16
Boston, Mass.....	63	11	.....	.69	1.96	.....
Block Island, R. I.....	65	8	.....	.77	.....	.59
Middle Atlantic States:						
Albany, N. Y.....	65	15	.....	.77	3.47	.....
New York, N. Y.....	66	24	.....	.78	.07	.....
Philadelphia, Pa.....	66	41	.....	.74	.02	.....
Atlantic City, N. J.....	68	13	.....	.74	.....	.48
Baltimore, Md.....	70	39	.....	.87	.79	.....
Washington, D. C.....	70	43	.....	.90	.83	.....
Lynchburg, Va.....	72	36	.....	.75	.16	.....
Norfolk, Va.....	73	30	.....	1.11	.....	.95
South Atlantic States:						
Charlotte, N. C.....	72	37	.....	.69	1.55	.....
Wilmington, N. C.....	75	18	.....	1.69	.....	1.38
Charleston, S. C.....	78	15	.....	1.48	.....	.92
Augusta, Ga.....	77	12	.....	.86	.67	.....
Savannah, Ga.....	77	7	.....	1.27	.12	.....
Jacksonville, Fla.....	79	6	.....	1.82	.....	1.10
Key West, Fla.....	83	.....	15	1.53	.85	.....
Gulf States:						
Atlanta, Ga.....	72	34	.....	.69	.....	.52
Pensacola, Fla.....	79	4	.....	1.35	.....	1.06
Mobile, Ala.....	79	6	.....	1.20	.....	.14
Montgomery, Ala.....	78	9	.....	.68	1.68	.....
Vicksburg, Miss.....	78	19	.....	1.06	.....	.32
New Orleans, La.....	81	5	.....	1.13	.....	.03
Shreveport, La.....	78	8	.....	1.14	.74	.....
Fort Smith, Ark.....	74	5	.....	.77	.77	.....
Little Rock, Ark.....	74	22	.....	.80	1.18	.....
Palestine, Tex.....	78	13	.....	.91	.....	.15
Galveston, Tex.....	82	1	.....	1.85	1.21	.....
San Antonio, Tex.....	79	5	.....	1.05	4.63	.....
Corpus Christi, Tex.....	81	2	.....	1.61	.....	1.39
Brownsville, Tex.....	81	16	.....	1.84	.....	1.02
Rio Grande, Tex.....	82	7	.....	.88	.....	.88
Ohio Valley and Tennessee:						
Memphis, Tenn.....	74	19	.....	.76	.04	.....
Nashville, Tenn.....	74	27	.....	.82	.....	.52
Chattanooga, Tenn.....	71	46	.....	.88	1.64	.....
Knoxville, Tenn.....	71	35	.....	.66	.41	.....
Louisville, Ky.....	72	19	.....	.68	1.29	.....
Indianapolis, Ind.....	68	4	.....	.64	4.58	.....
Cincinnati, Ohio.....	71	13	.....	.52	1.78	.....
Columbus, Ohio.....	67	30	.....	.62	3.68	.....
Pittsburgh, Pa.....	67	49	.....	.61	.79	.....
Lake Region:						
Oswego, N. Y.....	64	18	.....	.62	4.60	.....
Rochester, N. Y.....	64	26	.....	.55	3.69	.....
Buffalo, N. Y.....	64	16	.....	.78	2.64	.....
Erie, Pa.....	65	25	.....	.97	2.95	.....
Cleveland, Ohio.....	65	34	.....	.88	3.46	.....
Sandusky, Ohio.....	66	33	.....	.78	2.54	.....
Toledo, Ohio.....	66	6	.....	.62	.....	.23
Detroit, Mich.....	65	15	.....	.63	.....	.19
Port Huron, Mich.....	63	23	.....	.61	.....	.19
Alpena, Mich.....	59	29	.....	1.08	.....	.78
Marquette, Mich.....	59	34	.....	1.11	.....	.78
Grand Haven, Mich.....	68	9	.....	.94	.14	.....
Milwaukee, Wis.....	63	24	.....	.72	.....	.71
Chicago, Ill.....	66	3	.....	.71	.27	.....
Duluth, Minn.....	58	19	.....	1.06	.....	.50
Upper Mississippi Valley:						
St. Paul, Minn.....	61	9	.....	.79	.....	.13
La Crosse, Wis.....	63	.....	10	1.16	.....	.92
Dubuque, Iowa.....	64	12	.....	1.11	.....	.53
Davenport, Iowa.....	66	.....	4	.77	.....	.13
Des Moines, Iowa.....	63	.....	6	.91	.....	.69
Keokuk, Iowa.....	68	.....	4	.85	.....	.27
Springfield, Ill.....	66	17	.....	.91	.....	.15
Cairo, Ill.....	72	.....	1	.63	.....	.06
St. Louis, Mo.....	71	.....	6	.84	.40	.....
Springfield, Mo.....	68	.....	7	.55	2.90	.....

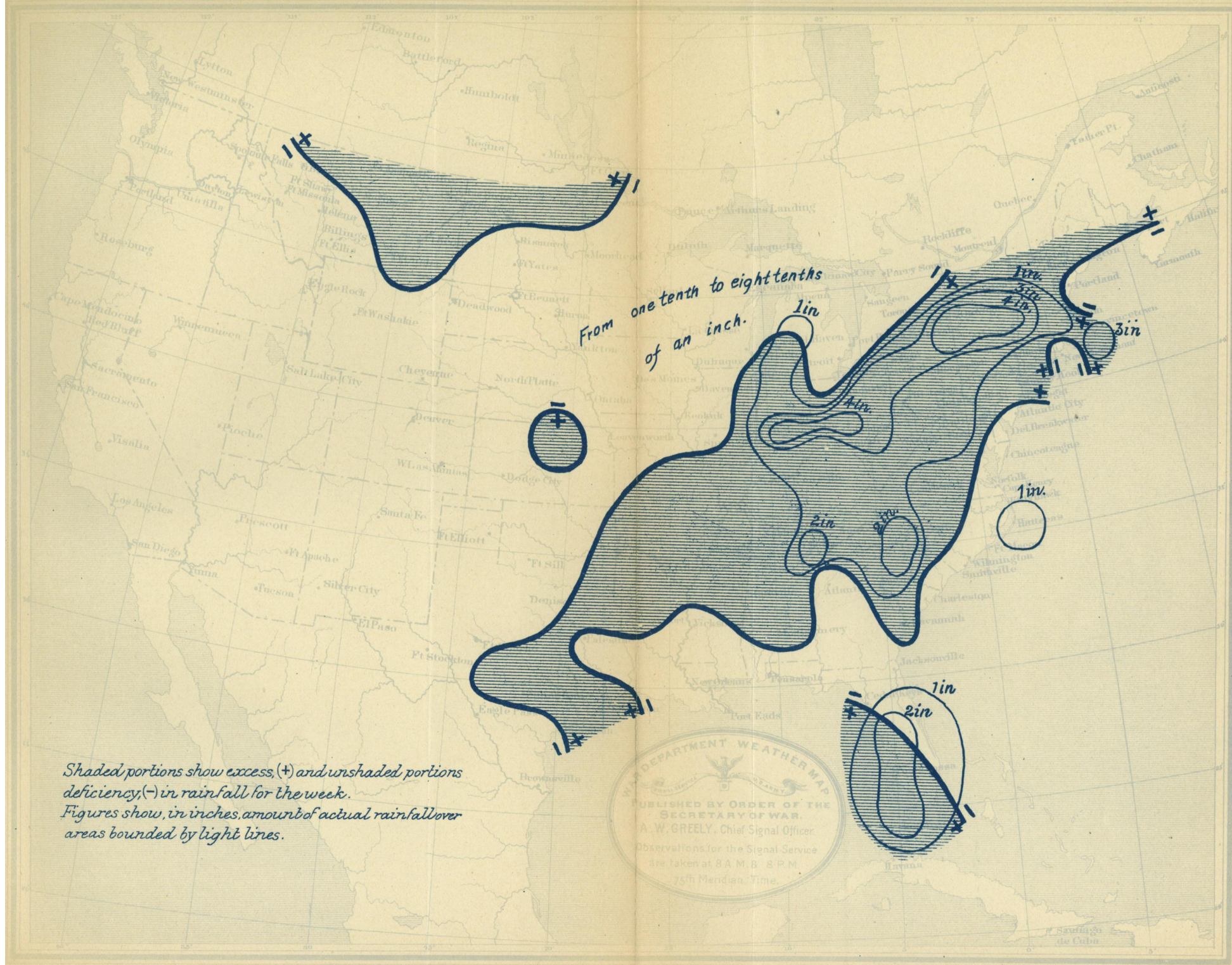
*Temperature and Prevailing Direction of Wind, week ending
September 12th 1890.*

Form 106 P



Rainfall, week ending September 12th. 1890.

Form 106 P



Shaded portions show excess, (+) and unshaded portions deficiency, (-) in rainfall for the week.

Figures show, in inches, amount of actual rainfall over areas bounded by light lines.

Table of temperature and rain-fall, week ended September 12, 1890—Continued.

Locality.	Mean temperature in degrees, Fahrenheit.			Rain-fall in inches and hundredths.		
	Normal.	Excess.	Deficiency.	Normal.	Excess.	Deficiency.
Missouri Valley:						
Kansas City, Mo.....	68		18	.82		.04
Concordia, Kan.....	66		14	.71	1.14	
Omaha, Nebr.....	65		14	.83		.45
Valentine, Nebr.....	61		7	.84		.34
Huron, Dak.....	61		2	.35		.19
Extreme Northwest:						
Moorhead, Minn.....	57			.49		.04
St. Vincent, Minn.....	55		45	.42	.76	
Bismarck, Dak.....	58		45	.29		.03
Buford, Fort, Dak.....	57		63	.16	1.32	
Rocky Mountain Slope:						
Assinniboine, Fort, Mont.....	58		90	.28	.44	
Helena, Mont.....	55		64	.35		.25
Custer, Fort, Mont.....	60		60	.17	.99	
Rapid City, Dak.....	56		20	.13		.13
Salt Lake City, Utah.....	65		43	.22		.22
Cheyenne, Wyo.....	56		7	.20		.20
North Platte, Nebr.....	62		6	.32		.31
Denver, Colo.....	62		9	.22		.18
Dodge City, Kans.....	68		20	.32		.30
Elliott, Fort, Tex.....	67	3		.52		.52
Sill, Fort, Ind. T.....	73	2		.64		.22
Santa Fé, N. Mex.....	61	12		.35		.35
Pacific Coast:						
Olympia, Wash.....	57		22	.72		.72
Portland, Oreg.....	62	9		.43		.43
Roseburg, Oreg.....	63		17	.20		.20
Red Bluff, Cal.....	78		11	.15		.15
Sacramento, Cal.....	71	4		.06		.06
San Francisco, Cal.....	59		7	.04		.04
Los Angeles, Cal.....	69	3		.04		.04
San Diego, Cal.....	67	7		.01		.01
Yuma, Ariz.....	86	24		.01		.01

FOREIGN.

(Reports received through the Department of State and other channels.)

GREAT BRITAIN—*England and Wales.*—The deaths registered in 28 great towns of England and Wales during the week ended August 30 corresponded to an annual rate of 20.7 a thousand of the aggregate population, which is estimated at 9,715,559. The lowest rate was recorded in Bristol, viz, 11.2, and the highest in New-Castle-on-Tyne, viz, 35.2 a thousand. Diphtheria caused 3 deaths in Manchester, 2 in Leicester, 2 in Liverpool, and 2 in New-Castle-on-Tyne.

London.—One thousand six hundred and fifty-nine deaths were registered during the week, including measles, 60; scarlet fever, 24; diphtheria, 26; whooping-cough, 39; enteric fever, 17; and diarrhœa and dysentery, 180. The deaths from all causes corresponded to an annual rate of 19.6 a thousand. Diseases of the respiratory organs caused 184 deaths. In greater London 2,134 deaths were registered, corresponding to an annual rate of 19.3 a thousand of the population. In the "outer ring" the deaths included measles 12 and whooping-cough 11.

Ireland.—The average annual death rate, represented by the deaths registered during the week ended August 30, in the 16 principal town districts of Ireland, was 21.0 a thousand of the population. The lowest rate was recorded in Lisburn, viz, 0.0, and the highest in Londonderry, viz, 33.9 a thousand. In Dublin and suburbs 149 deaths were registered, including measles, 2; enteric fever, 3; whooping-cough, 3; and diphtheria, 1.

Scotland.—The deaths registered in eight principal towns during the week ended August 30 corresponded to an annual rate of 16.8 a thousand of the population, which is estimated at 1,345,563. The lowest mortality was recorded in Leith, viz, 11.9, and the highest in Dundee, viz, 22.9 a thousand. The aggregate number of deaths registered from all causes was 434, including small-pox, 1; measles, 4; scarlet fever, 1; diphtheria, 10; whooping-cough, 14; fever, 4; diarrhœa, 32; and croup and laryngitis, 3.

FRANCE—*Rheims.*—Month of July, 1890. Population, 97,903. Total deaths, 225, including phthisis pulmonalis, 25; diphtheria and croup, 4; measles, 4; and enteric fever, 1.

SPAIN—*Cholera—Vessel from Valencia bound for the United States.*—Under date of September 3, 1890, the United States consul transmitted

the following letter, upon receipt of which a copy was forwarded to the quarantine officer at New York :

SIR: I beg to inform you that on the 2d day of September the Anchor Line steamer *Scotia*, Captain Crockhart, left the port of Valencia bound for New York, and laden with fruit and onions, and that the cholera, both in the city and province of Valencia, has spread more rapidly and carried off more victims during the last ten days than it has during any period of equal duration during the summer.

Cholera report for the city and province of Valencia for the period from August 16 to August 31, 1890.

In the city of Valencia there were 118 cases and 67 deaths.

Cities and towns in the province of Valencia—	Cases.	Deaths.
Algernesí	16	7
Alcira	3	3
Alcudia	19	8
Castellon de Rugat	3	2
Canals	2	0
Cerdá	1	0
Fenollet	1	1
Onténiente	89	43
Sellent	2	0
Ador	7	1
Albalat	16	7
Alberique	13	9
Utiel	148	75
Pueblo Nuevo Mar	12	6
Rugat	1	1
Antella	8	3
Arzobispo	37	22
Requena	108	55
Paiporta	11	6
Alcantara	13	4
Cuatretonda	4	1
Luchente	2	0
Valldigua	6	5
Catarroja	9	5
Carcer	10	5
Almusafes	1	2
Ayelo de Malferit	19	9
Bolbaite	12	4
Rafol Salem	1	1
Valladá	2	0
Alfarrasi	10	5
Palma	1	1
Cantale	2	0
Masalares	1	1
Sollana	2	2
Ollería	4	2
Belgida	4	1
Torrente	9	5
Godella	1	1
Montesa	2	2
Alacuas	2	1
Chelva	4	0
Gabarda	1	1
Llosa de Ranes	2	2
Almoines	4	2
Villalonga	5	4
Bufulat	1	1

Cities and towns in the province of Valencia— <i>Continued.</i>	Cases.	Deaths.
Benaguacil.....	2	1
Granjá.....	1	1
Montichelvo.....	0	1
Barcheta.....	5	2
Cotés.....	1	1
Novela.....	6	2
Paterna.....	1	1
Albaite.....	0	1
Camprana.....	1	0
Pedralva.....	1	1
Chera.....	.3	1
Alniente.....	1	0

ITALY—*Florence*.—Month of July, 1890. Population, 181,767. Total deaths, 317, including enteric fever 4 and diphtheria 4.

Milan.—Month of July, 1890. Population, 399,081. Total deaths, 902, including typhus fever, 39; scarlet fever, 19; and small-pox, 1.

TURKEY—*Constantinople*.—Month of July, 1890. Population, 700,000. Total deaths, 833, including 16 from small-pox.

ASIATIC TURKEY—*Aleppo—Cholera*.—A telegram of the 15th instant from the consular agent reports cholera at Aleppo.

JAPAN—*Hiogo—Cholera*.—The Secretary of State transmits a dispatch, dated September 10, 1890, from the consul at Osaka and Hiogo, reporting cholera in Hiogo.

WEST INDIES—*St. Thomas*.—Quarter ended June 30, 1890. Population, 15,000. Total deaths, 121, including phthisis pulmonalis 16 and measles 9.

DANISH WEST INDIES—*Quarantine order*.—The United States minister at Copenhagen, under date of August 26, 1890, sends information that the Royal Danish Government has issued an order requiring all vessels arriving at the ports of the Danish West Indies from Spanish ports to remain in quarantine fourteen days.

CUBA—*Havana—Yellow fever*.—Week ended September 4, 1890. The consul-general reports 65 cases of yellow fever and 9 deaths therefrom. Prevailing diseases, yellow, pernicious, and enteric fevers. The number of cases of yellow fever reported from military hospitals show a marked decrease during the past month.

Yellow fever on board vessel while lying at wharf.—The sanitary inspector, U. S. Marine-Hospital Service, writes as follows:

The British bark *Erycinia* is an old wooden vessel, bound for Bull River, South Carolina, that entered this port July 22; discharged cargo during one month at San José wharf on Havana side of harbor, and while there eight or ten cases of yellow fever occurred on board. The captain died of yellow fever at the Garcini Infirmary. The vessel, after leaving the wharf for the open bay, was thoroughly fumigated with sulphur (150 pounds), and decks, bilges, ballast, and wooden surfaces treated with strong solution of mercuric chloride. Some of the crew were convalescing at the date of sailing.

Santiago de Cuba.—Period from August 1 to August 15, 1890. Total deaths, 37, including yellow fever, 2; pernicious fever, 3; diphtheria, 2; and croup, 2.

DEMERARA—Georgetown.—Month of June, 1890. Population, 54,000. Total deaths, 198, including phthisis pulmonalis, 38; fevers, 9; measles, 5; and leprosy, 2.

BRAZIL—Small-pox.—Under date of August 12, 1890, the United States consul at Bahia writes as follows:

SIR: I have the honor to report the health of this city good. But in some of the interior towns of the State, distant from 40 to 90 miles from this city, small-pox is decimating the population.

In the city of Alagohinas, about 75 miles by rail from this place, out of a population of about 8,000, it is reported that as many as 1,200 deaths have occurred since the latter part of June. Santo Amaro, Juirad' San't Anna, and two or three other towns from 20 to 50 miles from Alagohinas have also had a large death roll from small-pox. While further in the interior, about 200 miles from here, man and beast are said to be dying from hunger and thirst because of the lack of rain. Subscriptions are being raised and provisions purchased and sent to Orobo District, where great suffering is said to prevail. In this city since the 1st of March there has been a superabundance of rain. During this time rain has fallen on 123 different days, at times the rain actually pouring in torrents for three consecutive days and nights.

The disinfecting value of sulphur dioxide.

[Translated for this Bureau from an article by Dr. L. H. Thoinot, published in the *Annales de l'Institut Pasteur*, Paris, August 25, 1890.]

Sulphur dioxide, liberated by the combustion of sulphur, was employed in the last century to arrest the spread of epidemics, and it has continued in use during our own times down to the present day, when some authorities have questioned its value as an agent of disinfection, and relegated it to a very inferior grade in the scale of disinfectants. Conflicting experience has thrown doubt on its value. In 1882, Vallin, a competent hygienist, expressed surprise that the disinfecting value of sulphur dioxide should still be undetermined, and in 1890 the aspect of the question is very little changed.

Dougall and Baxter were the first to conduct exact experiments in the line of study of the disinfecting value of sulphur dioxide. They experimented on dried vaccine matter. Sternberg in 1880 experimented with dried and fresh vaccine matter. The conclusion reached by them was that sulphur dioxide in variable doses destroyed the vaccine virus.

In 1881 Vallin made a trial of the action of sulphur dioxide on tubercular virus and the virus of glanders by inoculation of animals. The results of his experiments were favorable to the action of sulphur dioxide.

Other investigators have thrown discredit on this agent. Gärtner and Schotte in 1880 demonstrated that culture liquids, sowed with bacteria or putrefied urine, were sterilized only by very large doses of sulphur dioxide, also that thick strips of stuff, impregnated with culture

liquids charged with bacteria, were capable, after sulphurization, of planting a nutritive liquid with germs.

In 1882 Wollflügel showed that anthrax spores and spores from garden-earth resisted the action of sulphur dioxide.

Dujardin-Beaumetz, experimenting in 1884, at the Cochin hospital, on vaccinal lymph and some microbial cultures, showed the effect of sulphur dioxide on lymph and its inefficacy as regards the bacillus anthracis.

In 1884 Dubief experimented on germs as they occur in nature. He operated in a closed room, counted the bacteria before and after sulphurization, and demonstrated a partial but pronounced destructive effect of sulphur dioxide on atmospheric germs.

The object of the present writer in the experiments conducted by him was to fix exact rules of disinfection for each pathogenic microbe. These rules, while they may not secure the absolute certainty of laboratory experiment, may be of more practical value than scientific theory to sanitary service.

The septic vibron of Pasteur, bacterian or symptomatic anthrax, bacteridian anthrax, the virus of tuberculosis of glanders, Guadeloupe farcy, and Asiatic cholera were subjected to the action of sulphur dioxide. The virus was exposed in a room of a capacity of fifty cubic meters. All the openings and cracks of this room were hermetically sealed with plaster and mastic, and the door was stopped with mastic during the operation. The sulphur dioxide was generated by burning flowers of sulphur in variable quantities. The weight of the sulphur burned during the operation was carefully noted. Each microbial species that lent itself to the process was used to prove the disinfecting value of sulphur dioxide by inoculation of an animal with the sulphurized culture. Microbial species which do not lend themselves to inoculation (typhoid fever, etc.) were sowed in fresh nutritive material after sulphurization. Control tests were made in all cases.

Such, in outline, was the technique employed. It was varied to meet particular cases. The results of experimental study may be stated as follows:

The septic vibron of Pasteur, subjected to high doses of sulphur dioxide, was in no degree affected.

The virus of desiccated symptomatic anthrax was not affected by sulphur dioxide. To obtain only a variable effect a large quantity of sulphur must be burned during a period of forty-eight hours.

Bacteridian anthrax desiccated or in liquid or gelatine cultures was not affected by sulphur dioxide.

The tuberculous bacillus of Koch, in culture and sputum, was destroyed after twenty-four hours exposure to sulphur dioxide generated by the combustion of sixty grams of sulphur to the cubic meter. A less dosage gives doubtful security.

The bacillus of glanders was destroyed after twenty-four hours exposure to sulphur dioxide, generated by the combustion of sixty or even forty and fifty grams of sulphur to the cubic meter.

The bacillus of Eberth (typhoid fever) was destroyed in culture after twenty-four hours exposure to sulphur dioxide generated by the combustion of sixty grams of sulphur to the cubic meter.

The bacillus of diphtheria was destroyed in culture by exposure for twenty-four hours to sulphur dioxide generated by the combustion of sixty grams of sulphur to the cubic meter.

The comma bacillus (Asiatic cholera) yielded to contact during a period of twenty-four hours with sulphur dioxide generated by the combustion of sixty grams of sulphur to the cubic meter. Dosage of forty or fifty grams was effective. The cultures had been carried on in the laboratory for many months, and were no doubt to some extent weakened; the test, therefore, is rather of the vitality than the virulence of the microbe.

The microbe of farcy was completely destroyed by contact for a period of twenty-four hours with sulphur dioxide in the proportion of sixty grams to the cubic meter. Forty or fifty grams will destroy the cultures, but the effect is variable.

The conclusion to which these experiments lead is that the question of disinfectants is not general but one of species. It must be determined if a certain disinfectant is adapted to a certain microbe, and in what dose. The microbes studied by the writer may be divided into two classes:

1. Septic vibriion (malignant cedema), symptomatic anthrax, and bacteridian anthrax absolutely resist sulphur dioxide, even when present in large quantities and under the condition of prolonged action.

2. The microbes of tuberculosis, glanders, farcy of cattle, typhoid fever, Asiatic cholera, and diphtheria may, in a general way, be destroyed by sulphur dioxide in variable doses. Sixty grams of sulphur with exposure for twenty-four hours in a closed room give absolute certainty. This dosage is advised for practical use.

NOTE.—Attention is called to the fact that the microbes mentioned in group one of the above report are spore-forming microbes, while those in the second group, with the exception, perhaps, of tuberculosis, do not form spores (Sternberg). The results of the experiments appear to be in accord with those obtained by Doctor Sternberg published in the Report of the Committee on Disinfectants of the American Public Health Association. (See Vols. XI and XIII, Reports and Papers, A. P. H. A.)

Geographical pathology and diseases prevailing in the several countries— Africa.

[Translated for this Bureau from *La Rivista Internazionale d' Igiene*, Naples, June, 1890.]

EGYPT.—In the hospitals for natives gastro-intestinal affections, phthisis, scrofula, typhoid fever, and convulsions predominate. Malarial fevers are severe and endemic in some parts of the country. Epidemics of measles, scarlet fever, and small-pox are frequent; dengue is rare. Syphilis is extraordinarily diffused along the banks of the Nile. The proportion of deaths from dysentery is stated to be 1 to 5.98 cases of death from other diseases. There have been frequent outbreaks of plague up to the middle of the present century. Liver disorders are very common, generally among foreigners and natives addicted to the use of alcoholic stimulants. About four-fifths of the population of Egypt are affected with cutaneous diseases. The great number of parasites by which the Egyptians have always been tormented are recognized as the cause of *hypoema tropicali*, *haematuria endemica*, etc. Ophthalmia is very common.

ABYSSINIA.—Pernicious malarial fevers prevail in a violent form along the littoral of the Red Sea; dysentery, hepatitis, meningitis, and

tropical phagedæna are frequent. Phthisis pulmonalis is almost unknown, but bronchitis, pulmonitis, and rheumatism are of frequent occurrence; scabies and syphilis are largely prevalent. The higher levels of the country are free from malaria and constitute a sanitarium for the cure of intermittent fevers contracted in the low country.

TRIPOLI AND TUNIS.—Severe malarial fevers prevail along the coast, and exanthematic typhus occurs in a fatal epidemic form. Plague and cholera are of about equal frequency, and are probably imported by pilgrims from Mecca.

ALGERIA.—A large percentage of mortality is due to dysentery; ophthalmia frequently occurs as an epidemic; phthisis is stated to be rare; scabies, scleroderma, and scrofulosis are endemic among the natives.

MOROCCO.—The climate is, for the most part, salubrious, but malarial diseases occur. Phthisis and diseases of the respiratory organs are rare. Scabies and scleroderma endemic within very circumscribed limits; cholera is frequently imported; plague is rare.

WEST COAST OF AFRICA.—Throughout Senegal and Guinea intermittent and remittent fevers are severe and endemic. Enormous prevalence of dysentery, hepatitis, splenitis, acute sun-stroke, apoplexy, traumatic tetanus, ophthalmia, rheumatism, scabies, and scleroderma complete the pathologic chart of the west coast of Africa. The natives suffer terribly from dracontiasis, tropical phagedæna of the lower extremities, psoriasis, eczema, herpetic dermatopathia, and albinism.

SOUTH AFRICA.—This region is immune from malaria, but typhus and typhoid fevers are frequent. A specific form of remittent typhus, known as African fever, occurs as a widespread epidemic. Phthisis is rare, but light affections of the respiratory system are quite common. The sanitary condition of Cape Colony is considered good, notwithstanding the relatively great diffusion of cutaneous ulcers, syphilis, scabies, and scleroderma.

MOZAMBIQUE.—From July to September malarial fevers prevail. Diarrhœa, dysentery, bilous fever, and liver disorders are as common as on the west coast of the continent. Cachexia and entozoic affections are very frequent. Livingstone found goitre in the mountain districts of the interior. He noted also the frequency of rheumatism. Endemic hematuria, hydrocele, and syphilis are very common. Albinism, *yaws*, and the Mozambique ulcer are endemic along the coast. Dracontiasis, eczema, and herpetic cutaneous diseases are immensely prevalent. Inflammations of the eye occur with extraordinary frequency.

MADAGASCAR.—Malaria is generally diffused. Other pathologic conditions are similar to those that prevail along the coast. Seychelles Islands are considered, where habitable, to be a sanitarium.

MASCARENE, BOURBON, AND REUNION ISLANDS.—Epidemics of dengue are frequent and many cases of beri-beri occur among the Hindoo emigrants.

MAURITIUS.—Malaria sensibly decreased in the year 1886-'87. A form of typhoid fever, the so-called Bombay fever, imported from India, seems to have taken root in the island. Gastro-enteric diseases, entozoa, tetanus, alcoholism, chyluria, and endemic hematuria are of frequent occurrence. Scrofula, phthisis, and syphilis are very rare. Dengue and beri-beri were at one time prevalent.

CORRECTION.—In the Abstract of September 5, in the article entitled "The Bacillus of Diphtheria," the name of one of the authors, "Gerkin," should read Yersin.

MORTALITY TABLE, FOREIGN CITIES.

Cities.	Week ended.	Estimated population.	Total deaths from all causes.	Deaths from—							
				Cholera.	Yellow fever.	Small-pox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.
Glasgow.....	Aug. 30.....	545,678	187					2		5	
Brussels.....	Aug. 23.....	469,459	261					7			
Warsaw.....	Aug. 16.....	455,852	241						6	10	
Warsaw.....	Aug. 23.....	455,852	302			11			1	11	
Hamburg.....	Aug. 16.....	455,000	247							6	
Rome.....	July 19.....	417,392	130					2		4	
Amsterdam.....	Aug. 30.....	406,402	166					1		3	
Lyons.....	Aug. 23.....	401,930	235					2			
Cairo.....	Aug. 14.....	374,838	236					11			1
Leipsic.....	Aug. 23.....	305,479	187						1	1	5
Odessa.....	Aug. 23.....	276,300	149					1	7		2
Barcelona.....	Aug. 23.....	272,000	182				5				
Dresden.....	Aug. 23.....	269,000	87					2	1	3	
Palermo.....	Aug. 23.....	250,000	50						1	1	
Bristol.....	Aug. 30.....	232,248	79								
Rotterdam.....	Aug. 30.....	203,472	88					1			
Genoa.....	Aug. 30.....	180,393	3			2	2			2	
Konigsberg.....	Aug. 17.....	160,500	93			2			1		
Trieste.....	Aug. 30.....	158,054	85							1	
Hanover.....	Aug. 9.....	155,000	80								
Hanover.....	Aug. 23.....	155,000	114								6
Ghent.....	Aug. 16.....	152,395	104							2	1
Ghent.....	Aug. 23.....	152,395	48							5	3
Christiania.....	Aug. 23.....	143,500	64					1			
Sunderland.....	Aug. 23.....	136,506	27				4				
Funchal.....	Aug. 9.....	133,250	58						2	3	
Nuremberg.....	Aug. 9.....	129,400	54								
Nuremberg.....	Aug. 16.....	129,400	75					2	2	2	
Nuremberg.....	Aug. 23.....	129,400	57							3	
Stuttgart.....	Aug. 30.....	125,510	57								
Bremen.....	Aug. 23.....	124,000	61						1	4	
Cardiff.....	Aug. 30.....	117,012	79								
Dantzic.....	Aug. 16.....	115,140	31						1		
Barmen.....	Aug. 23.....	113,000	65								
Aix-La-Chapelle.....	Aug. 24.....	109,642	56								
Catania.....	Aug. 25.....	109,000	73						1	2	1
Crefeld.....	Aug. 30.....	108,000	68							1	
Stettin.....	Aug. 16.....	106,207	57					1			
Rheims.....	Aug. 16.....	97,903	15						4		1
Zurich.....	Aug. 23.....	91,323	49								2
Mayence.....	Aug. 23.....	65,802	17								
Trapani.....	Aug. 23.....	43,095	13								
Marsala.....	Aug. 23.....	40,131	12								
Cape Town.....	Aug. 13.....	36,000	6							1	
Amherstburg.....	Sept. 9.....	30,000	13		1						
Vera Cruz.....	Sept. 4.....	23,800	12								
Gibraltar.....	Aug. 24.....	23,681	12								
Girgenti.....	Aug. 23.....	23,547	21					2	2	1	
Licata.....	Aug. 23.....	19,000	6						3	6	3
Kingston, Can.....	Sept. 12.....	18,284	10								
Victoria, B. C.....	Aug. 30.....	18,000	8								
Matamoros.....	Sept. 6.....	16,000	37			1					
St. Thomas, W. I.....	Aug. 26.....	15,000	44								
St. Thomas, W. I.....	Aug. 30.....	15,000	5								
Flushing.....	Aug. 30.....	13,200	3								
Guelph.....	Sept. 6.....	10,173	8							1	
Tuxpam.....	Aug. 23.....	9,000	5								
Sarnia.....	Sept. 6.....	6,200	5					1			
Turk's Islands.....	Aug. 14.....	6,000	6								
Turk's Islands.....	Aug. 21.....	6,000	3								
Prescott, Ont.....	Sept. 4.....	2,988									

JOHN B. HAMILTON,

Supervising Surgeon-General, Marine-Hospital Service.